



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8WM-DW

All Commenters On:
Amoco Production Company
Nitrogen Injection Permits

RE: Issuance of Final UIC Permits Numbered:
CO2556-03105, Simon Land & Cattle #15U-2R Well;
CO2557-03106, Simon Land & Cattle #22-1 Well;
CO2558-03107, Simon Land & Cattle #15U-3 Well; and
CO2559-03108, Simon Land & Cattle #15U-4 Well,
Nitrogen Injection Pilot Project, Ignacio Blanco Field,
La Plata County, Colorado

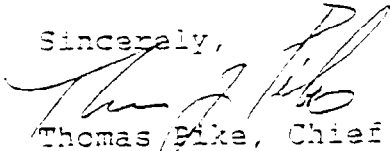
Dear Commenter:

Enclosed is a copy of the Responsiveness Summary prepared by EPA to address the public comments received on EPA's intent to issue the four Underground Injection Control (UIC) Permits and a single Aquifer Exemption for AMOCO's proposed Nitrogen Injection Pilot Project enhanced recovery injection wells in Ignacio Blanco Field, La Plata County, Colorado. This Responsiveness Summary addresses all comments received following each public comment opportunity; included is a copy of the Memorandum of Understanding (MOU) for Coordination of Oil and Gas Related Actions and Regulation in the San Juan Basin.

Also enclosed is a copy of the Permit Modifications (two pages for the modified permit) resulting from the public comments. Procedures for appealing (to the Administrator) the EPA decision to issue the four AMOCO Final UIC Permits (as modified) are also enclosed. Please be aware that an appeal must be transmitted in accordance with these procedures within thirty (30) days of your receipt of this letter.

Please direct any questions and related correspondence to the attention of Gustav Stolz or Thomas Pike at Mail Code 8WM-DW; you may telephone Mr. Stolz or Mr. Pike at (303) 293-1416 or 293-1544, respectively.

Sincerely,


Thomas Pike, Chief
UIC Implementation Section

Enclosures

To All Commenters:

RE: Amoco Production Company: Proposed 4-Well Pilot
Nitrogen Injection Project, La Plata County,
Colorado, under the following UIC Final Permits

C02556-03105, Simon Land & Cattle #15U-2R Well
C02557-03106, Simon Land & Cattle #22-1 Well
C02558-03107, Simon Land & Cattle #15U-3 Well
C02559-03108, Simon Land & Cattle #15U-4 Well

Described below are the instructions for contacting the Administrator of the Environmental Protection Agency (EPA) in order to request an Administrative Review of the above-referenced Final Permits. The EPA Region VIII, Drinking Water Branch, Underground Injection Control Implementation Section, is issuing these four permits for the one-year-pilot underground injection of Nitrogen gas for the purpose of evaluating proposed enhanced recovery of methane coal-gas from the Fruitland Coal Formation. A copy of a typical Draft Permit was provided to each commenter at the hearing. Copies were also mailed upon request, so every commenter had an opportunity to review and comment on the Draft Permit prior to Final Permits issuance. Enclosed is a copy of the Responsiveness Summary which addresses each of the numerous written and oral comments. Two new permit conditions (not present in the Draft Permits) resulted from commenters' input and are included in the Final Permits. Copies of the two Final Permit pages which contain the new permit conditions are also enclosed herewith.

ADMINISTRATIVE REVIEW (40 CFR Section 124.19)

1. Any person who filed comments on the Draft Permit decision or participated in any public hearing on such decision may petition the Administrator to review any condition of the draft permit decision.
2. Any person who failed to file comments or participate in any public hearing on the Draft Permit decision may petition for administrative review only to the extent of changes from the draft to the final permit decision.
3. The petition must include a statement of the reasons supporting that review, including a demonstration that any issues being raised in the petition were previously raised during the public comment period or during any public hearing and, when appropriate, a showing that the condition in question is based on:
 - a. A finding of fact or conclusion of law which is clearly erroneous; or
 - b. An exercise of discretion or an important policy consideration which that Administrator should, in his or her discretion, review.

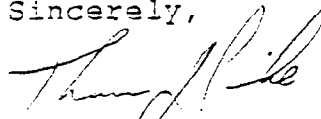
Four UIC Final Permits
Pilot Nitrogen Injection Project
Administrative Review
Page Two

4. Such a request must be made within thirty (30) days of service notice of the Regional Administrator's final permit decision, and shall be mailed to:

Administrator, US EPA
401 M Street, SW
Washington, D.C. 20460

5. Please be advised that your comments will have to be received by the Administrator within thirty (30) days of your receipt of the permit, with an additional three (3) day grace period for mail delivery [See 40 CFR Sections 124.19 (a) and 124.20 (d)]. For example, if you receive this notice on November 22, 1991, your response must be received by the Administrator by December 22, 1991.

Sincerely,



Thomas J. Pike, Chief
UIC Implementation Section

RESPONSIVENESS SUMMARY

AMOCO PRODUCTION COMPANY FOUR-WELL PILOT NITROGEN INJECTION ENHANCED RECOVERY PROJECT

CO2556-03105, Simon Land & Cattle #15U-2R Well
CO2557-03106, Simon Land & Cattle #22-1 Well
CO2558-03107, Simon Land & Cattle #15U-3 Well
CO2559-03108, Simon Land & Cattle #15U-4 Well

LA PLATA COUNTY, COLORADO

The Environmental Protection Agency (EPA) made a decision to issue the above-referenced Draft Permits in accordance with the UIC Program regulations. Public Notice of this decision was published in the Durango Herald on July 2, 1991.

During the initial Public Comment Period (July 2, 1991 through August 2, 1991) for the Draft Permits, EPA received a number of comments. A total of five letters and two telephone calls were received in response to the EPA public advertisement of its intent to issue Final Permits for the four proposed nitrogen gas enhanced recovery injection wells to Amoco Production Company. One letter was written by the Director of the Western Colorado Congress (representing approximately 1400 persons) requesting a public hearing because of its members' concerns about air and water quality, wildlife habitat and other surface damage, noise, and the potential of nitrogen gas reactions to generate nitrates and nitrides above and/or below the ground surface. Some of these same concerns were identified by the other respondents.

An EPA review of these comments indicated sufficient public interest and concerns of perceived potential endangerment of underground sources of drinking water (USDW) to justify a formal Public Hearing.

As a result of substantial public interest in the four proposed Amoco nitrogen gas enhanced recovery injection wells Draft Permits, the Environmental Protection Agency (EPA) conducted a Public Hearing in Durango, Colorado, September 25, 1991.

At the Public Hearing, Thomas J. Pike, Chief, UIC Implementation Section, Region VIII, EPA, described the EPA's underground injection control program, its goal of protecting ground water, its requirements concerning well construction, monitoring, and inspections, and its permitting process for injection wells. Gustav Stolz, UIC Petroleum Engineer, Region VIII, EPA, explained technical construction aspects in the Draft Permit for the four proposed nitrogen gas injection wells, together with their locations.

Four N₂ Gas Injection Wells
 Responsiveness Summary
 Public Hearing: 9/25/91
 Page Two

Twenty four (24) commenters expressed their views orally and thirty (30) commenters expressed their views in writing (on their yellow registration cards) at the public hearing. An additional twenty seven (27) commenters expressed their views in writing subsequent to the public hearing. A summary of the issues and the number of comments on each issue is included below. This includes written and verbal (telephone) comments received during the initial comment period and at the public hearing.

TABLE I. SUMMARY OF ISSUES AND COMMENTS

Issues	Cards	Source of Comments				Total
		(a) Letter	(b) Verbal	Written		
Grnd. Wtr. Pollution	6	2	15	2	0	25
Gas (N ₂ /CH ₄) in DW	9	2	3	7	1	22
Noise Pollution	15	2	15	11	2	45
Air Pollution	2	2	2	3	2	11
N ₂ Gas Reactions	1	5	7	5	2	20
Well Density	1	0	1	4	0	6
EIS, Env/Surf Impcts	14	4	15	9	3	45
No more Development	5	0	0	3	0	8
Miscellaneous	14	-	-	19	13	46
TOTAL COMMENTS						228

The above Tabulation indicates that a majority of the comments address "surface concerns". The EPA - UIC Program responses to the comments by "Issue" category are:

Ground Water Pollution: Commenters expressed concern about the potential of injected nitrogen gas and produced methane gas migration into underground sources of drinking water (USDW) and drinking water wells. The proposed construction of the enhanced recovery wells should ensure protection of actual and potential future underground sources of drinking water. Each of the proposed injection wells is to be cemented through the overlying USDW formations and the upper confining zone (the 1000-foot Kirtland Shale section) immediately above the Fruitland Formation pilot project coal seam injection zone.

Four N₂ Gas Injection Wells
Responsiveness Summary
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Page Three

The construction of each proposed injection well (4), of the existing (1) salt water disposal well, of each Fruitland Coal gas production well (2), and of the plugged and abandoned well (1) within a 1/4 mile radius of the proposed enhanced recovery injection wells is sound and provides protection from migration of injected fluids into actual or potential underground sources of drinking water.

Gas (Nitrogen/Methane) in Drinking Water: The current understanding is that gas migration into some drinking water wells is through conventional Mesa Verde gas production wells (for which there was no requirement to cement off the Fruitland zone). Commenters expressed concern that this could provide potential unique avenues for gas migration into existing shallow drinking water wells. No such unique combination of well(s) construction exists within the Area of Review (AOR) of this nitrogen injection project. However, in order to ensure that this project does not result in nitrogen/methane gas migration into drinking water wells, Amoco is being required to submit a plan for EPA approval for the purpose of monitoring those drinking water wells which are present within the AOR for methane and nitrogen gas. The plan must include:

- a) a satisfactory system of water sampling all drinking water wells which are present within the AOR for the purpose of conducting gas analyses which will identify the presence/absence of methane gas;
- b) a system of gas (methane & nitrogen) content and gas composition (isotopic analyses) for all samples of drinking water which have demonstrated the presence of gas, and which is consistent with the gas analyses procedures employed by the Ground Water Task Force (GWTF);
- c) monthly reporting of the sampling/analyses results; and
- d) a contingency plan to address the situation if analyses results indicate the presence of increased content of nitrogen and/or methane.

The Draft Permits have been changed to include these items; otherwise there have been no changes from the Draft Permit as issued by EPA, copies of which were made available to all interested parties.

Noise Pollution and Air Pollution: Commenters were concerned with the possibility of noise pollution and air pollution resulting from the operation of the proposed project enhanced recovery injection

Four N₂ Gas Injection Wells
Responsiveness Summary
Public Hearing: 9/25/91
Page Four

and production wells. Notwithstanding the authorization that the approved permits will provide to Amoco's underground enhanced recovery operations, it will remain Amoco's responsibility to comply with all federal, state, or local environmental requirements, including but not limited to the Noise Control Act of 1972, as amended, 42 U.S.C.A. Section 4901, et seq., and the clean Air Act, as amended, 42 U.S.C.A. Section 7401, et seq. As provided by the federal regulations at 40 CFR Section 144.35, the issuance of this permit "does not convey any property rights of any sort, or any exclusive privilege [nor does it] authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations."

In addition, EPA and various other state and federal agencies have entered into a Memorandum of Understanding (MOU) for Coordination of Oil And Gas Related Actions and Regulation in the San Juan Basin. This agreement provides for a third party to review and report on environmental impacts from coal bed methane development in the San Juan Basin. It also calls for the agencies to cooperate in developing best management and regulatory practices to anticipate and respond to issues arising from oil and gas activity in the area.

Nitrogen Gas Reactions: Commenters expressed concern regarding the possible reaction of inert nitrogen gas with other elements and/or compound to generate noxious nitrides/nitrates which could migrate into underground sources of drinking water or into existing shallow drinking water wells. Dr. Ronald W. Klusman, Colorado School Of Mines, submitted for EPA review his conclusion that "... nitrogen flooding does not pose any environmental hazard to deep or shallow groundwaters of the area." At the request of the Region VIII UIC Implementation Section staff, Dr. Klusman's analysis and conclusions were subsequently reviewed by Dr. Hugh H. Russell, Microbiologist, at the Robert S. Kerr Environmental Research Laboratory of the U.S. Environmental Protection Agency in Ada, Oklahoma. Dr. Russell advises that "... all information and assumptions presented by Dr. Klusman seem correct."

Well Density: Commenters expressed concern regarding the increased well density caused by additional injection wells required by the nitrogen (N₂) injection project. The well spacing rules have been established by the State of Colorado Oil and Gas Conservation Commission (COGCC) for gas production wells in the Ignacio Blanco Field. Any increase in the gas production well density rules would be granted only after additional public hearing(s) and on a case-by-case basis as a result of an analysis of technical data that describes specific unique features. Gas well spacing in the

Four N₂ Gas Injection Wells
Responsiveness Summary
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Ignacio Blanco Gas Field has been determined to be 320 acres per well. Because one existing gas producing well (SLC #22-1) in the project is to be converted to nitrogen injection, it required a hearing and subsequent approval of the COGCC. The nitrogen injection pilot project does not alter the field-wide gas well spacing. Should the project be successful, any expansion of this type of project would require additional permitting (and public participation) by the Environmental Protection Agency (Regions VI and VIII), the Colorado Oil and Gas Conservation Commission, the Bureau of Land Management, and the New Mexico Oil Conservation Commission. This N₂ injection project does not permanently affect well density.

EIS, Environmental/Surface Impacts: Commenters expressed concern regarding a variety of surface impacts and strongly suggested that the EPA should develop an Environmental Impact Statement. Section 124.9(b)(6) of 40 CFR provides, in pertinent part, "... UIC ... permits are not subject to the environmental impact statement provisions of Section 102(2) (c) of the National Environmental Policy Act, 42 U.S.C. Section 4321 [NEPA]. It is believed that the Memorandum of Understanding (MOU) discussed earlier would address the surface impact issues that a formal NEPA environmental impact statement would address. A copy of this MOU is attached; the MOU may be considered an integral part of this Responsiveness Summary.

No More Development: Commenters expressed concern regarding the potential for field-wide expansion of similar N₂ injection projects and for additional gas production wells. Natural resource (minerals) development/extraction by the mineral estate ownership is regulated by the State of Colorado on private lands and by the Bureau of Land Management on Federal/Tribal lands. This concern is beyond the scope of those activities regulated by EPA under the UIC Program.

Miscellaneous Issues: There were a number of commenters with a variety of concerns which were not addressed under the categories listed and addressed above. These include:

- (1) EPA has already made the decision to issue the permit. In the Public Notice, EPA advised that it "...is hereby serving notice of intent to issue these four UIC permits...". The purpose of the Public Notice was to advise the general public of the EPA preliminary determination to approve the Draft Permits. Copies of typical permits were made available so that the public could comment on the permit issues. In response to the issues raised by the public, EPA has made the permit conditions more stringent, and a final decision was made only at the conclusion of the public participation phase of the permitting process.

- (2) Objection to an experimental gas injection project. The injection of gas is included in the UIC regulations; gas injection is routinely conducted for enhanced oil recovery in reservoir partial pressure maintenance projects in areas where there is an excess of natural gas. The injection of gas is not an experimental process. The injection of nitrogen gas, as it pertains to potential reactions with other ions to generate harmful compounds, has been addressed above.
- (3) Why is there no compensation to the surface owners? The permit in question is concerned primarily with groundwater protection. Payments to surface owners (and other contractual arrangements between private parties) are outside the scope of EPA's underground injection control program.
- (4) & (5) EPA should conduct a net pollution audit, with reference to the surface; why does EPA have only underground jurisdiction? These considerations are not included under the UIC Program regulations, as the "Underground" name of the program implies. However, EPA believes these issues will be addressed under the provisions of the interagency MOU.
- (6) EPA approves the projects without the people having any say. The purpose of the public comment period and public hearing was to provide the concerned public with an opportunity to comment; EPA has attempted to respond to the comments as well as possible in this Responsiveness Summary.
- (7) Conduct a 'net energy gain' analysis. This activity is outside those activities regulated under the UIC Program. However, EPA believes these issues will be addressed under the provisions of the interagency MOU.
- (8) The surface owners are totally frustrated because the surface issues are not 'protected' nor considered by the Environmental 'Protection' Agency. The UIC Program regulations do not address these types of issues; public comment was solicited for the purpose of addressing the specific Draft Permit issues. Broader environmental protection issues will be considered under part 2 of the attached interagency MOU.
- (9) The "But For" clause: Comments imply that surface impacts would not be a factor "but for" the down-hole activity. EPA's authority to regulate non-groundwater impacts by means of UIC permits has not been addressed in reported case law. EPA would reiterate that Amoco's permit confers no right to violate any environmental laws, whether or not related to groundwater issues.

Four N₂ Gas Injection Wells
Responsiveness Summary
Public Hearing: 9/25/91
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This concludes a review of the public comments. Having reviewed the Administrative Record, EPA has made the decision to issue the Final Permits for the four Simon Land and Cattle Company (SLC) injection wells; one proposed additional operator requirement is applicable to each of the four Draft Permits as a result of the public comments. This requirement addresses the monitoring (periodic sampling and analyses for methane gas and nitrogen gas) of water samples obtained from each drinking water well within the project Area of Review; it will be included as an addition to Permit Condition II. D. 1. These four SLC wells are numbered:

- 1) SLC #15U-2R (CO2556-03105);
- 2) SLC #22-1 (CO2557-03106);
- 3) SLC #15U-3 (CO2558-03107); and
- 4) SLC #15U-4 (CO2559-03108)

outside of EPA
Mtg. 1/15/91

Memorandum of Understanding
Among
The Bureau of Land Management
Colorado and New Mexico State Offices
and
the Environmental Protection Agency
Regions VI and VIII
and
The Colorado Oil and Gas Conservation Commission
and
The New Mexico Oil Conservation Division
for
Coordination of Oil and Gas Related Actions and Regulation
in the San Juan Basin

The Bureau of Land Management (BLM) Colorado State Office (CSO) and New Mexico State Office (NMSO); the Colorado Oil and Gas Conservation Commission (COGCC); the New Mexico Oil Conservation Division (NMOCD); and the Environmental Protection Agency (EPA), Regions VI and VIII, agree that, due to the heightened interest and demands created by coal bed methane development, the regulatory response to oil and gas development in the San Juan Basin of Colorado and New Mexico requires interagency coordination and information sharing. To this end, the agencies agree to the following:

1. Information Sharing.

To the extent authorized by law, the agencies will share nonproprietary geologic, hydrologic, engineering, and other information and data obtained on the San Juan Basin. The agencies will also keep each other advised of upcoming management decisions and other agency actions relating to oil and gas activity in the basin.

2. Review of San Juan Basin Environmental Analyses

Within three months of the execution of this agreement, the agencies will develop, subject to the approval of the contracting authority of the various agencies, a mechanism for contracting and a formula for funding a third party inventory and review of the existing environmental analyses, equivalent documents, and related information prepared by the various federal and state agencies with jurisdiction in the basin. The third party will inventory and summarize the existing analyses, documents, and information, and do a review for completeness, consistency, and coordination of analysis and mitigation. Within four months after execution of the contract, the review will be completed and a report made to the heads of the agencies. Within thirty days of receiving the report, the heads of the agencies will meet to review the report and determine any further course of action and agency participation.

3. Information Review and Dissemination.

The agencies will develop a means to report to the interested public new information, agency actions, etc., on coal bed methane activity in the San Juan Basin. Initially, the agencies will utilize the San Juan Basin Oil and Gas Coordinating Committee as a means for disseminating information or reports concerning their actions under this agreement.

4. Best Management Practices.

The agencies will work together to develop common best management and regulatory practices to anticipate and respond to issues relating to oil and gas activity in the San Juan Basin. The agencies further agree to consider implementation, within their respective jurisdictions, of the best management and regulatory practices, including those recommended by the technical committees.

5. Technical Committees.

The agencies will form, and provide technical expertise and representation to, ad hoc technical committees for the coordination and determination of best regulatory practices relating to oil and gas activities in the San Juan Basin. Such technical committees will be formed when necessary to resolve technical regulatory issues identified by any party to this agreement. Agency participation on a technical committee will be determined by the issue identified for resolution; each party to this agreement will not necessarily be represented on each technical committee. The committees will work to develop common and best approaches to technical issues, and make recommendations to the appropriate agency officials.

This agreement will become effective as of the date of the last signature to this document. This agreement will be reviewed for adequacy, effectiveness, and continuing need five years from the effective date, unless previously canceled by any party to the agreement by written notice to all other parties.

Bol-Moore
Colorado State Director, BLM

10/25/91
Date

Samuel W. [Signature]
New Mexico State Director, BLM

4/23/91
Date

[Signature]
EPA Regional Administrator, Region VI

1/4/91
Date

[Signature]
EPA Regional Administrator, Region VIII

8-26-91
Date

Dennis Ricknell
Director, Colorado Oil and Gas
Conservation Commission

9/17/91
Date

[Signature]
Director, New Mexico Oil Conservation
Division

8/23/91
Date



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2405

UNDERGROUND INJECTION CONTROL PROGRAM
DRAFT PERMIT

Class II Enhanced Recovery Well

Permit No. C02558-03107

Well Name: Simon Land & Cattle No. 15U-3
Field: San Juan Basin Coal Degas Project
County & State: La Plata County, Colorado

issued to:

AMOCO Production Company
1670 Broadway
P. O. Box 800
Denver, Colorado 80201

Date Prepared: April 10, 1991

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PART I. AUTHORIZATION TO CONSTRUCT AND INJECT

Pursuant to the Underground Injection Control Regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146, and 147,

AMOCO Production Company
1670 Broadway
P.O. Box 800
Denver, Colorado 80201

is hereby authorized to construct a new San Juan Basin Coal Degas Nitrogen Injection Pilot Project injection well (one of four injection wells in the Pilot Project), commonly known as Simon Land & Cattle (SLC) No. 15U-3. The SLC No. 15U-3 project injection well is located on private lands within the exterior boundaries of the Southern Ute Indian Tribe Reservation in the NE quarter of the SW quarter (at 2600' FSL & 1800' FWL) in Section 15, Township 34N, Range 9W in La Plata County, Colorado; it will be placed into service as a Class II "improved gas" recovery injection well using the injection of nitrogen (N₂) gas into portions of the Fruitland Coal Formation in the pilot project area. The pilot project area includes spacing units consisting of S/2 Section 15 and N/2 Section 22 in T34N, R9W, La Plata County, Colorado. Injection shall be for the purpose of enhanced recovery of hydrocarbon gas in accordance with conditions set forth herein.

Injection activities shall not commence until the operator has fulfilled all applicable conditions of this permit and has received written authorization from the Director. "Prior to Commencing Injection" requirements are set forth in Part II, Section C. 1. of this permit.

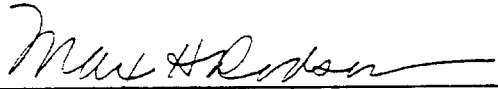
All conditions set forth herein refer to Title 40 Parts 124, 144, 146, and 147 of the Code of Federal Regulations and are regulations that are in effect on the date that this permit becomes effective.

This permit consists of a total of thirty (30) pages and includes all items listed in the Table of Contents. Further, it is based upon representations made by the permittee and on other information contained in the administrative record. It is the responsibility of the permittee to read and understand all provisions of this permit.

This permit and the authorization to inject are issued for "continuous injection for a period of approximately one year"; the methane gas productivity results from the pilot project will be evaluated for one year after shut-down of nitrogen injection operations. At the end of the pilot project, three of the five project wells will be plugged and abandoned; the remaining two project wells will be returned to production to satisfy current Colorado Oil and Gas Conservation Commission (COGCC) spacing requirements, as indicated in the Amoco Application for UIC Permits.

Issued this 5th day of February, 1992

This permit shall become effective _____.


Max H. Dodson, Director
Water Management Division *

* NOTE: The person holding this title is referred to as the "Director" throughout this permit.

This permit consists of a total of thirty (30) pages and includes all items listed in the Table of Contents. Further, it is based upon representations made by the permittee and on other information contained in the administrative record. It is the responsibility of the permittee to read and understand all provisions of this permit.

This permit and the authorization to inject are issued for "continuous injection for a period of approximately one year"; the methane gas productivity results from the pilot project will be evaluated for one year after shut-down of nitrogen injection operations. At the end of the pilot project, three of the five project wells will be plugged and abandoned; the remaining two project wells will be returned to production to satisfy current Colorado Oil and Gas Conservation Commission (COGCC) spacing requirements, as indicated in the Amoco Application for UIC Permits.

Issued this _____ day of _____, 1991.

This permit shall become effective _____.

DRAFT

Max H. Dodson, Director
Water Management Division *

* NOTE: The person holding this title is referred to as the "Director" throughout this permit.

PART II. SPECIFIC PERMIT CONDITIONS

A. WELL CONSTRUCTION

1. Casing and Cementing. The proposed construction and well schematic of the proposed, to-be-drilled new injection well, together with the proposed construction details and schematic submitted with the application are hereby incorporated into this permit as Appendix A, and shall be binding on the permittee. The new 8 5/8-inch, 24-pound per foot surface casing and the new 5 1/2-inch, 17-pound per foot long string casing will be cemented to surface from 400 feet and 2700 feet Kelly Bushing (KB), respectively, providing suitable protection through all underground sources of drinking water (USDW). The Fruitland Formation injection zone may be considered a USDW, but a request for an aquifer exemption is being processed concurrently with the permit application. All cement to be used in the construction of the well is designed for the life expectancy of the well. This new Fruitland Coal Formation injection well is proposed for nitrogen gas (N₂) injection service with a cased-hole completion in the injection interval with appropriate construction requirements.

The proposed Construction Procedure for this new nitrogen injection well is adequate and is included in Appendix A. The Fruitland Coal Formation will be completed by **perforating the injection interval at 2,600-2,640 feet KB.**

2. Tubing and Packer Specifications. Injection tubing of 2 7/8-inch diameter will be utilized with an appropriate packer set at approximately 2,550' KB (as shown in Appendix A) inside the 5 1/2-inch, 17-pound per foot long string casing. The casing/tubing annulus will be filled with fresh water treated with corrosion inhibitor and oxygen scavenger fluids, or other fluids approved by the Director. Injection between the outermost casing protecting the underground sources of drinking water (USDWs) and the wellbore is prohibited.

3. Formation Logging and Testing. Open hole porosity and resistivity logging will consist of a variable density log (VDL); a cement bond (CBL) and gamma ray (GR) log will be run from total depth (TD) to the base of the surface casing shoe to verify cement tops and zonal isolation. Amoco also proposes to core the Fruitland Coal seam prior to setting long string casing in this new well; copies of the core analyses reports will be submitted to EPA. The tubing/casing annulus will be **mechanical integrity tested** upon completion of the well to injection service. No additional formation logging or testing will be required prior to authorization to inject.

4. Monitoring Devices. The operator shall provide at the time of well construction and maintain in good operating condition:

(a) Appropriate gas analysis equipment in conjunction with the nitrogen generator such that representative samples of the injection fluids (approximately 95% inert nitrogen [N₂] gas and 5% oxygen [O₂] gas) can be analyzed. Injected fluid analyses will be required at the beginning of the one-year injection period and thereafter as needed.

(b) Two, one-half (1/2) inch FIP fittings, isolated by plug or globe cut-off valves, and positioned to provide for either (1) the permanent attachment of one-half (1/2) inch MIP gauges, or (2) the attachments for equivalent "quick-disconnect" gauges at the wellhead on the injection tubing and on the tubing/casing annulus. The gauges used shall be of a design to provide (1) a full pressure range of 100 percent greater than the anticipated operating pressure, and (2) a certified deviation accuracy of five (5) percent or less; and

(c) An individual nitrogen gas flow meter-run (for each of the four injection wells) with measured cumulative volumes that are certified for a deviation accuracy of five (5) percent or less throughout the range of injection rates allowed by the permit.

5. Proposed Changes and Workovers. The permittee shall give advance notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted injection well. In addition, the permittee shall provide all records of well workovers and other subsequent test data, including the required mechanical integrity testing, to EPA within sixty (60) days of completion of the activity. Appendix B contains samples of the appropriate reporting forms.

Demonstration of mechanical integrity shall be performed within thirty (30) days of completion of any workovers or alterations and prior to resuming injection activities, in accordance with Part II, Section C.2.(a).

6. Postponement of Completion. If the well is not completed, for injection service, within one (1) year from the effective date of this permit, **authorization to inject will automatically expire**, unless the permittee requests an extension. The request shall be made to the Director in writing, in lieu of the annual reporting requirements of Part II, Section D. 4., and shall state the reasons for the delay in construction and confirm the protection of all USDWs. **The extension under this section may not exceed one year**. Financial responsibility shall be maintained during the period of inactivity in accordance with Part II, Section F in the event the operator does not properly plug and abandon (P&A) the well upon expiration of the effective/extension date. Once authorization to inject expires under this part, the full permitting process, including opportunity for public comment, must be repeated before authorization to inject will be re-issued.

B. CORRECTIVE ACTION

Corrective action is indicated on the basis of limited well records for one well within the one quarter mile radius area of review (AOR). The Steve Simon "A" No. 1, NE NW Section 22 in T34N R9W, is a plugged and abandoned well with inadequate cement to isolate the USDWs. Amoco will perform the necessary remedial work to isolate the Fruitland Formation from the shallower USDWs under the supervision of the Colorado Oil and Gas Commission. No further corrective action is required.

C. WELL OPERATION

1. Prior to Commencing Injection. Injection operations may not commence until the permittee has complied with items (a) and (b) as follows:

(a) All new well construction is complete, a cement bond (CBL) and gamma ray (GR) log has been run from total depth (TD) to the base of the surface casing shoe, a static bottom hole pressure is obtained, the Corrective Action on S. Simon A No.1 is completed, and the permittee has submitted a completed Completion Report For Enhanced Recovery Well, (Form 7520-10 in Appendix B); and

(i) The Director has inspected or otherwise reviewed the newly converted injection well and notified the operator that it is in compliance with the conditions of the permit; or

(ii) The permittee has not received notice from the Director of his or her intent to inspect or otherwise review the new injection well within thirteen (13) days of the date of the Completion Report For Enhanced Recovery Well referenced above, in which case prior inspection or review is waived and the permittee may commence injection. [Note: However, item (b) below must also be satisfied.];

(b) The well has demonstrated mechanical integrity in accordance with 40 CFR 146.8 and Part II.C.2. below and the permittee has received notice from the Director that such a demonstration is satisfactory. The permittee shall notify EPA thirty (30) days prior to conducting this test so a representative may be present to observe the test: and

*Addition
to Permit* [(c) The permittee has obtained the EPA approval of a plan submitted for the purpose of monitoring those drinking water wells which are present within the AOR for methane and nitrogen gas, (as required in the Responsiveness Summary).]

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(b) The well has demonstrated mechanical integrity in accordance with 40 CFR 146.8 and Part II.C.2. below and the permittee has received notice from the Director that such a demonstration is satisfactory. The permittee shall notify EPA thirty (30) days prior to conducting this test so a representative may be present to observe the test.

2. Mechanical Integrity.

(a) Method of Demonstrating Mechanical Integrity. A

demonstration of the absence of significant leaks in the casing, tubing and/or packer must be made by performing a **tubing/casing annulus pressure test**. This test shall be for a minimum of 45 minutes at: 1) a pressure of 300 psig measured at the surface, if the well is shut-in, or 2) a pressure differential of 200 psig between the tubing and tubing/casing annulus, if injection activities are continued during the test. The tubing/casing annulus shall be filled with a non-corrosive fluid (either a non-toxic liquid or the injection liquid) at least 24 hours in advance of the test. Pressure values shall be recorded at five-minute intervals or less. A well passes the mechanical integrity test if there is less than a ten (10) percent change in pressure over the 45 minute period.

(b) Loss of Mechanical Integrity. If the well fails to demonstrate mechanical integrity during a test, or a **loss of mechanical integrity** as defined by 40 CFR 146.8 becomes evident during operation, the permittee shall notify the Director in accordance with Part III, Section E. 10. of this permit. Furthermore, injection activities shall be terminated immediately; and injection operations shall not be resumed until the permittee has taken necessary actions to restore integrity to the well and EPA gives approval to recommence injection.

3. Injection Intervals. Injection shall be permitted for portions of the **Fruitland Formation which will be perforated in the subsurface interval of approximately 2,600-2,640' KB in this well**.

4. Injection Pressure Limitation.

(a) Injection pressure measured at the surface, shall not **exceed 2,000 pounds per square inch (psig)**, as requested by the permittee and as determined from the Fruitland Formation fracture pressure information.

(b) The injection pressure limitation in paragraph (a) may be increased by the Director if the permittee demonstrates that the fracture pressure of the injection formation will not be exceeded. This demonstration shall be made by performing a valid step-rate injection test in the respective proposed injection zone(s). The Director will determine any allowable increase based upon the step-rate test results.

(c) The permittee shall give thirty (30) days advance notice to the Director if the increase in paragraph (b) will be sought. Details of the proposed test shall be submitted at least seven (7) days in advance of the proposed test date so that the Director has adequate time to review and approve the test procedures. Results of all tests shall

be submitted to the Director within ten (10) days of the test for his approval, in writing, before the permittee may begin continuous operation at an increased pressure.

(d) Any approval granted by the Director for the increased pressure limitations as stated in paragraph (b) shall be made part of this permit by **minor modification** without further opportunity for public comment.

5. Injection Volume (Rate) Limitation.

The permittee requested that the **volume rate of nitrogen gas injection be limited to approximately 250 MCFPD per well.** However, in no case shall injection pressure exceed that limit shown in Part II, Section C.4.(a) of this permit.

6. Injection Fluid Limitation. The permittee shall not inject any hazardous substances, as defined by 40 CFR 261, at any time during the operation of the facility. **Fluids to be injected as enhanced recovery injection fluids shall be limited to the 95% N₂ - 5% O₂ gaseous mixture.** The injection of a small amount of chemical isotopes (sulfur hexafluoride [SF₆] and fluorocarbons [Freons]) is being considered early in the project for the purpose of tracing the N₂ breakthrough to the center producing well. **This injection of these isotopes shall be authorized,** and shall also be identified and reported along with the routine annual report information in D.1.(a)(i) below.

7. Annular Fluid. The annulus between the tubing and the casing shall be filled with fresh water **treated with corrosion inhibitor and oxygen scavenger fluids;** the industry-acceptable solution proposed by the permittee is approved by the Director.

D. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. Injection Well Monitoring Program. Samples and measurements shall be representative of the monitored activity. The permittee shall utilize the applicable analytical methods described in Table I of 40 CFR 136.3, or in Appendix III of 40 CFR Part 261, or in certain circumstances, by other methods that have been approved by the EPA Administrator. Monitoring shall consist of:

(a) Analysis of the injection gases, performed:

(i) **initially only for the N₂ generator gas stream composition** (project duration of one year); and,

(ii) **whenever there is a change in the source of injection gas stream.**

*Addition to
Permit*

(b) Daily observations of injection pressure, flow rate annulus pressure, and cumulative volume. At least one observation of injection pressure, volume flow rate, annulus pressure, and cumulative volume, shall be recorded at regular intervals of seven (7) days.

(c) Monthly reporting of the required sampling/analyses results in accordance with the EPA-approved plan for all drinking water wells in the AOR [Condition II.C.1.(c)].

2. Monitoring Information. Records of any monitoring activity required under this permit shall include:

(a) The date, exact place, the time of sampling or field measurements;

(b) The name of the individual(s) who performed the sampling or measurements;

(c) The exact sampling method(s) used to take samples;

(d) The date(s) laboratory analyses were performed;

(e) The name of the individual(s) who performed the analyses;

(g) The results of such analyses.

3. Recordkeeping.

(a) The permittee shall retain records concerning:

(i) the nature and composition of all injected fluids until three (3) years after the conclusion of the pilot N₂ gas injection project (which terminates after one [1] year) and completion of plugging and abandonment has been carried out in accordance with the Plugging and Abandonment Plan shown in Appendix C, and is consistent with 40 CFR 146.10.

(ii) all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit for a period of at least five (5) years from the date of the sample, measurement or report throughout the operating life of the well.

(b) The permittee shall continue to retain such records after the retention period specified in paragraphs (a) (i) and (a) (ii) unless he delivers the records to the Director or obtains written approval from the Director to discard the records.

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(c) The exact sampling method(s) used to take samples;

(d) The date(s) laboratory analyses were performed;

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(ii) all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit for a period of at least five (5) years from the date of the sample, measurement or report throughout the operating life of the well.

(b) The permittee shall continue to retain such records after the retention period specified in paragraphs (a) (i) and (a) (ii) unless he delivers the records to the Director or obtains written approval from the Director to discard the records.

(c) The permittee shall maintain copies (or originals) of all pertinent monthly observation records [Part II., Section D.1.(b)] available for inspection at the lease facility.

4. Reporting of Results. The permittee shall submit an **Annual Report** to the Director summarizing the results of the monitoring required by Part II, Section D. 1. of this permit. Copies of all monthly records on injected fluids, and any major changes in characteristics or sources of injected fluid shall be included in the Annual Report. The first Annual Report shall cover the period from the effective date of the permit through December 31. Subsequently, the Annual Report shall cover the period of January 1 through December 31, and **shall be submitted by February 15 of the following year.** Appendix B contains Form 7520-11 which may be copied and used to submit the annual summary of monitoring.

E. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment (P&A). The permittee proposes to P&A the well one year after cessation of injection activities and shall notify the Director forty-five (45) days before abandonment of the well.

2. Plugging and Abandonment Plan. The permittee shall plug and abandon the well as provided in the Plugging and Abandonment Plan, Appendix C. EPA reserves the right to change the manner in which the well will be plugged if the well is modified during its permitted life or if the well is not made consistent with EPA requirements for construction and mechanical integrity. The Director may require the permittee to estimate and to update the estimated plugging cost periodically. Such estimates shall be based upon costs which a third party would incur to plug the well according to the plan.

3. Cessation of Injection Activities. After a permanent cessation of injection activities prior to one year from the initiation of injection, the permittee shall plug and abandon the well in accordance with the Plugging & Abandonment Plan, unless he:

(a) has provided notice to the Director, and

(b) has demonstrated that the well will be used in the future, and

(c) has described actions or procedures, satisfactory to the Director, that will be taken to ensure that the well will not endanger underground sources of drinking water during the period of temporary abandonment.

4. Plugging and Abandonment Report. Within sixty (60) days after plugging the well, the permittee shall submit a report on Form 7520-13 to the Director. The report shall be certified as accurate by the person who performed the plugging operation and the report shall consist of either: (1) a statement that the well was

plugged in accordance with the plan, or (2) where actual plugging differed from the plan, a statement specifying the different procedures followed.

F. FINANCIAL RESPONSIBILITY

1. Demonstration of Financial Responsibility. The permittee is required to maintain financial responsibility and resources to close, plug and abandon the injection well as provided in the plugging and abandonment plan.

(a) The permittee shall **submit financial statements and other information annually**, or as required by EPA, in order to demonstrate that its financial position remains sound, and that it continues to have adequate financial resources, as determined by EPA to close, plug, and abandon the injection wells in accordance with the approved plugging and abandonment plan.

(b) If financial statements or other information indicate that the permittee no longer has financial resources, according to EPA criteria, to assure that the injection wells will be properly plugged and abandoned, then the permittee must **make an alternate showing of financial responsibility**. This showing must be acceptable to the Director and must be submitted within sixty (60) days after having been notified by EPA of the necessity for making an alternate showing of financial responsibility.

(c) The permittee may, upon his own initiative and upon written request to EPA, change the method of demonstrating financial responsibility from financial statement coverage to a financial instrument such as a bond, letter of credit, or trust fund. Any such change must be approved by the Director.

2. Insolvency of Financial Institution. In the event that an alternate demonstration of financial responsibility has been approved under (b) or (c) above, the permittee must submit an alternative demonstration of financial responsibility acceptable to the Director within sixty (60) days after either of the following events occur:

(a) the institution issuing the trust or financial instrument files for bankruptcy; or

(b) the authority of the trustee institution to act as trustee, or the authority of the institution issuing the financial instrument, is suspended or revoked.

PART III. GENERAL PERMIT CONDITIONS

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The permittee, as authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or otherwise adversely affect the health of persons. Any underground injection activity not authorized in this permit or otherwise authorized by permit or rule is prohibited. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any enforcement action brought under the provisions of Section 1431 of the Safe Drinking Water Act (SDWA) or any other law governing protection of public health or the environment for any imminent and substantial endangerment to human health or the environment, nor does it serve as a shield to the permittee's independent obligation to comply with all UIC regulations.

B. PERMIT ACTIONS

1. Modification, Reissuance, or Termination. The Director may, for cause or upon request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR Sections 124.5, 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 CFR Section 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.

2. Conversions. The Director may, for cause or upon a request from the permittee, allow conversion of the well from a Class II injection well to a non-Class II well **if prior approval has been obtained from the COGCC.** Requests to convert the injection well from its Class II status to a non-Class II well, such as a production well, must be made in writing to the Director. Conversion may not proceed until a permit modification indicating the conditions of the proposed conversion is received by the permittee. Conditions of the modification may include such

items as, but is not limited to, approval of the proposed well rework, follow-up demonstration of mechanical integrity, and well-specific monitoring and reporting following the conversion.

3. Transfers. This permit is not transferrable to any person except after notice is provided to the Director and the requirements of 40 CFR 144.38 are complied with. The Director may require modification, or revocation and reissuance, of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and 40 CFR 144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

- The name and address of the permittee, and
- Information which deals with the existence, absence, or level of contaminants in drinking water.

E. GENERAL DUTIES AND REQUIREMENTS

1. Duty to Comply. The permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, or modification. Such non-compliance may also be grounds for enforcement action under the Resource Conservation and Recovery Act (RCRA).

2. Penalties for Violations of Permit Conditions. Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to such actions pursuant to the RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

5. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

6. Duty to Provide Information. The permittee shall furnish the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

7. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) **Inspect at reasonable times** any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) **Sample or monitor**, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA any substances or parameters at any location.

8. Records of the Permit Application. The permittee shall maintain records of all data required to complete the permit application and any supplemental information submitted for a period of five (5) years from the effective date of this permit. This period may be extended by request of the Director at any time.

9. Signatory Requirements. All reports or other information requested by the Director shall be signed and certified according to 40 CFR 144.32.

10. Reporting of Noncompliance.

(a) Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(b) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than thirty (30) days following each schedule date.

(c) Twenty-four Hour Reporting.

(i) The permittee shall report to the Director any noncompliance which may endanger health or the environment. Information shall be provided orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances by telephoning EPA at (303) 293-1413 (during normal business hours) or at (303) 293-1788 (for reporting at all other times). The following information shall be included in the verbal report:

(A) Any monitoring or other information which indicates that any contaminant may cause endangerment to an underground source of drinking water.

(B) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

(ii) A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

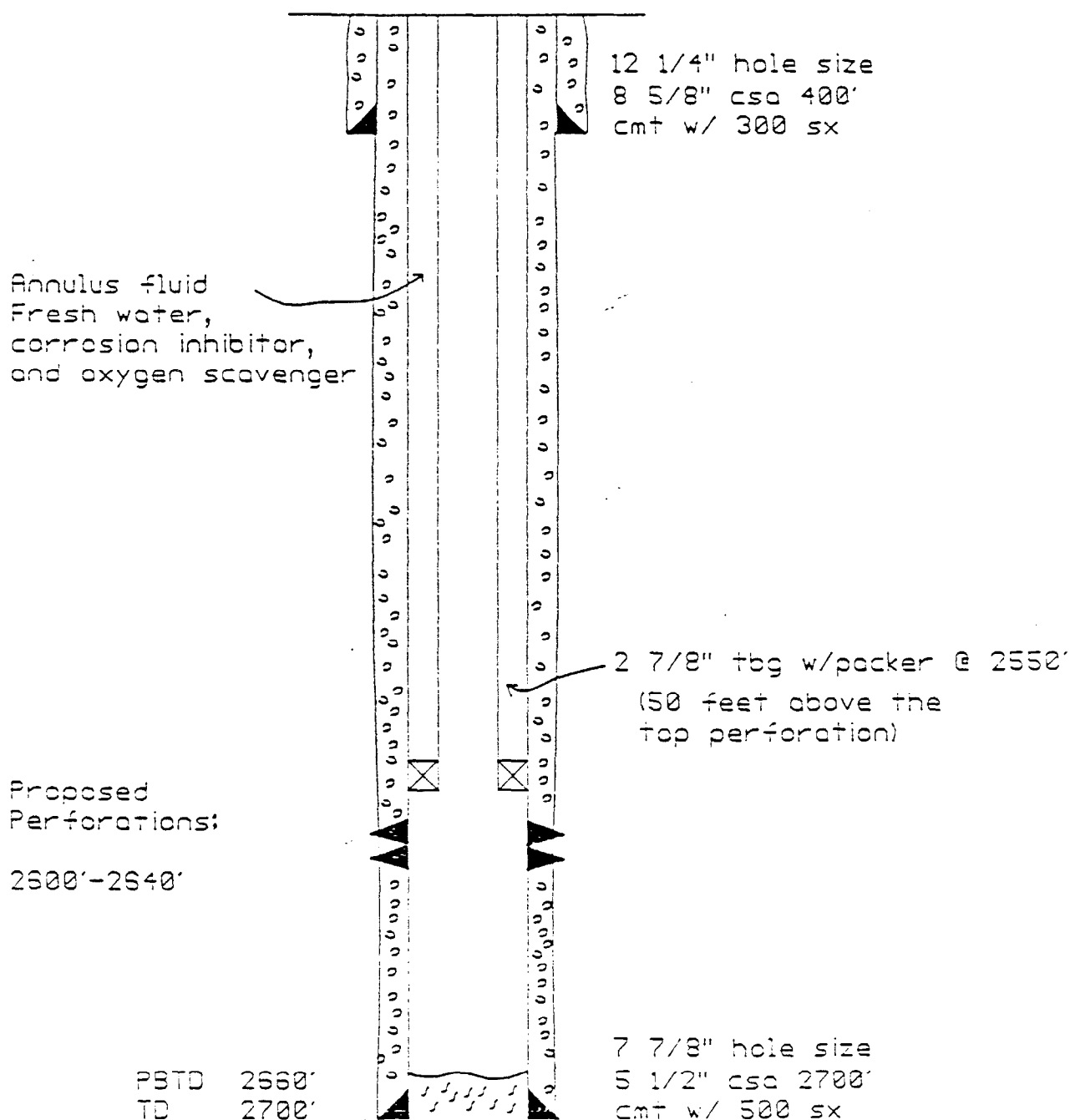
(d) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Part III, Section E. 10. (C) (ii) of this permit.

(e) Other Information. Where the permittee becomes aware that he failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall submit such facts or information within two (2) weeks of the time such information became known to him.

APPENDIX A - (Construction Procedures)

New Construction Schematic

ENHANCED RECOVERY NITROGEN INJECTION PILOT
 PROPOSED
 SIMON LAND & CATTLE NO. 15U-3
 NORTHERN INJECTOR



All depths for TD, PSTD, perforation, and packer
 will depend on actual logged depths of the
 Fruitland coal formation once well is drilled.

SIM153/VAP
 29/14/92

APPENDIX B - (Reporting Forms and Instructions)

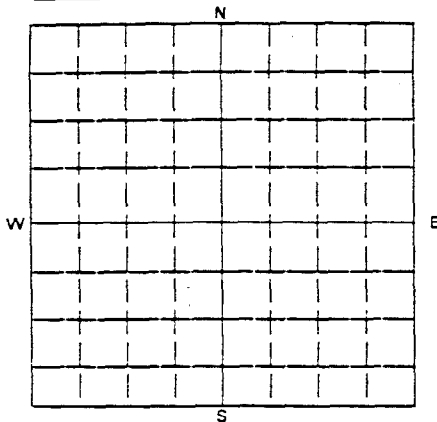
1. EPA Form 7520- 7: APPLICATION TO TRANSFER PERMIT
2. EPA Form 7520-10: WELL COMPLETION REPORT
3. EPA Form 7520-11: ANNUAL WELL MONITORING REPORT
4. EPA Form 7520-12: WELL REWORK RECORD
5. EPA Form 7520-13: PLUGGING RECORD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

APPLICATION TO TRANSFER PERMIT

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY

WELL STATUS

TYPE OF PERMIT

☐ Class I☐ Operating☐ Individual☐ Class II☐ Modification/Conversion☐ Area☐ Brine Disposal☐ Proposed

Number of Wells ____

☐ Enhanced Recovery☐ Hydrocarbon Storage☐ Class III☐ Other

Lease Name

Well Number

NAME(S) AND ADDRESS(ES) OF NEW OWNER(S)

NAME AND ADDRESS OF NEW OPERATOR

Attach to this application a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them.

The new permittee must show evidence of financial responsibility by the submission of surety bond, or other adequate assurance, such as financial statements or other materials acceptable to the director.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

**COMPLETION REPORT FOR BRINE DISPOSAL,
HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL**

Form Approved
OMB No. 2040-0042
Approval expires 9-30-86

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

N									
S									
W									E

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY

TYPE OF PERMIT

☐

Brine Disposal

☐

Individual

☐

Enhanced Recovery

☐

Area

☐

Hydrocarbon Storage

Number of Wells _____

Estimated Fracture Pressure
of Injection Zone

Anticipated Daily Injection Volume (Bbls)

Injection Interval

Average

Maximum

Feet

to Feet

Anticipated Daily Injection Pressure (PSI)

Depth to Bottom of Lowermost Freshwater Formation
(Feet)

Average

Maximum

Type of Injection Fluid (Check the appropriate block(s))

☐

Salt Water

☐

Brackish Water

☐

Fresh Water

☐

Liquid Hydrocarbon

☐

Other

Lease Name

Well Number

Name of Injection Zone

Drilling Began

Date Well Completed

Permeability of Injection Zone

Date Drilling Completed

Porosity of Injection Zone

CASING AND TUBING

CEMENT

HOLE

OD Size

Wt/Ft — Grade — New or Used

Depth

Sacks

Class

Depth

Bit Diameter

INJECTION ZONE STIMULATION

WIRE LINE LOGS, LIST EACH TYPE

Interval Treated

Materials and Amount Used

Log Types

Logged Intervals

Complete Attachments A — E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)

DATE SIGNED

Page 23 of 30
UIC Permit Number C02558-03107



NAME AND ADDRESS OF SURFACE OWNER

Well Number

3

EPA Form 7520-11 (2-84)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460**WELL REWORK RECORD**

NAME AND ADDRESS OF PERMITTEE

NAME AND ADDRESS OF CONTRACTOR

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

N									
S									

W E

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY

- ☐ Brine Disposal
☐ Enhanced Recovery
☐ Hydrocarbon Storage

Lease Name

Total Depth Before Rework

Total Depth After Rework

Date Rework Commenced

Date Rework Completed

TYPE OF PERMIT

- ☐ Individual
☐ Area
 Number of Wells ____

Well Number

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL
USE ADDITIONAL SHEETS IF NECESSARY

WIRE LINE LOGS, LIST EACH TYPE

Log Types

Logged Intervals

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*

SIGNATURE

DATE SIGNED

Page 25 of 30

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

PLUGGING RECORD



NAME AND ADDRESS OF PERMITTEE 	NAME AND ADDRESS OF CEMENTING COMPANY 																																																																																																				
STATE _____ COUNTY _____ PERMIT NUMBER _____																																																																																																					
LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES <div style="text-align: center;">N</div> <table border="1" style="width: 100%; height: 150px; border-collapse: collapse;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <div style="text-align: center;">S</div>																																																																																																					SURFACE LOCATION DESCRIPTION <div style="text-align: center;">1/4 OF 1/4 OF 1/4 SECTION TOWNSHIP RANGE</div> LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT Surface Location _____ ft. from (N/S) _____ Line of quarter section and _____ ft. from (E/W) _____ Line of quarter section TYPE OF AUTHORIZATION <input type="checkbox"/> Individual Permit <input type="checkbox"/> Area Permit <input type="checkbox"/> Rule Number of Wells _____ Lease Name _____
(Describe in detail the manner in which the fluid was placed and the method used in introducing it into the hole)																																																																																																					

CASING AND TUBING RECORD AFTER PLUGGING					WELL ACTIVITY	METHOD OF EMPLACEMENT OF CEMENT PLUGS	
SIZE	WT(LB./FT.)	TO BE PUT IN WELL (FT.)	TO BE LEFT IN WELL (FT.)	HOLE SIZE	<input type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II <input type="checkbox"/> Brine Disposal <input type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage <input type="checkbox"/> CLASS III	<input type="checkbox"/> The Balance Method <input type="checkbox"/> The Dump Barrier Method <input type="checkbox"/> The Two-Plug Method <input type="checkbox"/> Other	

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)							
Depth to Bottom of Tubing or Drill Pipe (ft.)							
Amount of Cement To Be Used (each plug)							
Surf. Volume To Be Pumped (cu. ft.)							
Measured Top of Plug (ft.)							
Measured Top of Plug (if tagged ft.)							
Surf. Wt. (Lb./Gal.)							
Type of Cement or Other Material (Class III)							

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS			
From	To	From	To

Signature of Cementer or Authorized Representative	Signature of EPA Representative
--	---------------------------------

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(REF. 40 CFR 122.22)

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED

APPENDIX C - (Plugging & Abandonment Plan)

1. Plugging & Abandonment Plan
2. Plugging & Abandonment Procedure
3. Plugging & Abandonment Plan Schematic

PLUGGING AND ABANDONMENT PLAN

Simon Land & Cattle No. 15U-3

Amoco anticipates that the Simon Land & Cattle No. 15U-3 will be utilized as an injection well in a five well enhanced recovery nitrogen pilot project. Nitrogen gas will be injected in a Fruitland Coal seam for a one year period. The project results will be evaluated for one additional year following the actual injection period. During the project evaluation period the Simon Land & Cattle No. 15U-3 will remain shut in. Following the year evaluation period the Subject well will be plugged and abandoned. At such time as Amoco must plug and abandon the well, the abandonment and isolation of the Fruitland Coal Formation will be accomplished by squeeze cementing the injection interval through a cement retainer set within 50 feet of the top of the injection interval with 25 sacks of class "B" cement and dumping 25 sacks of cement on top of the retainer. These cement volumes will insure full coverage of the injection zone from the plug back depth of 2660 feet to 2324 feet.

After the injection zone has been squeezed and cement has been dumped on top of the retainer, the well will be pressure tested to 500 psi and loaded with 9.0 pound per gallon drilling mud. After the well is circulated with mud, a balanced plug made up of 25 sacks of class "B" cement will be placed in the 5-1/2 inch casing from 226 feet to surface.

After spotting the cement plug, the wellhead will be removed and a dry hole marker will be installed. The location will be reclaimed and reseeded as required by the COGCC and the private surface owner.

UNITED STATES ENVIRONMENTAL PROTECTION
WASHINGTON, DC 20460

Form Used OMB No. 2040-0042 Approval Expires 12-31-91

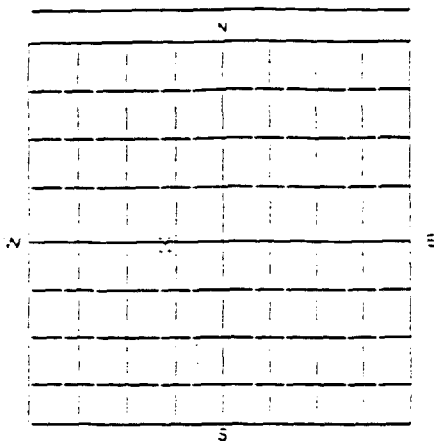
ENCL

PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY

Simon Land & Cattle No. 15U - 3
30' FWL x 2600' FSL, Sec 15, T34N, R9W
Plata County, Colorado

NAME AND ADDRESS OF OWNER/OPERATOR

Amoco Production Company
P.O. Box 800
Denver Colorado 80201LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT - 640 ACRES

STATE

COUNTY

PERMIT NUMBER

CO

LaPlata

SURFACE LOCATION DESCRIPTION

NW 1/4 OF NE 1/4 OF SW 1/4 SECTION 15 TOWNSHIP 34N RANGE 9W

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface 2600 S
Location _____ ft. from (N/S) _____ Line of quarter section
and 1800 from (E/W) _____ W _____ Line of quarter section

TYPE OF AUTHORIZATION

- ☐
- Individual Permit
-
- ☒
- Area Permit
-
- ☐
- Rule

Number of Wells 4Simon Land & Cattle
Lease Name

WELL ACTIVITY

- ☐
- CLASS I
-
- ☒
- CLASS II
-
- ☐
- Brine Disposal
-
- ☒
- Enhanced Recovery
-
- ☐
- Hydrocarbon Storage
-
- ☐
- CLASS III

Well Number 15U - 3

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT/LB/FT	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
3-5/8"	24#/Ft	400'	400'	12-1/4"
5-1/2"	17#/Ft	2700'	2700'	7-7/8"

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☒
- The Balance Method
-
- ☐
- The Dump Bailer Method
-
- ☐
- The Two-Plug Method
-
- ☒
- Other

Cement Retainer Plug #1

CEMENTING TO PLUG AND ABANDON DATA

	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	5-1/2"	5-1/2"	5-1/2"				
Depth to Bottom of Tubing or Drill Pipe (ft.)							
Sacks of Cement To Be Used (each plug)	25 SX	25 SX	25 SX				
Slurry Volume To Be Pumped (cu. ft.)	1.18	1.18	1.18				
Calculated Top of Plug (ft.)	2550'	2324'	Surface				
Measured Top of Plug (if tagged ft.)	2550'	2324'	Surface				
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6				
Type Cement or Other Material (Class III)	B	B	B				

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any)

From	To	From	To
2600'	2640' (Perforations)		

Estimated Cost to Plug Wells

\$ 15,000

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)

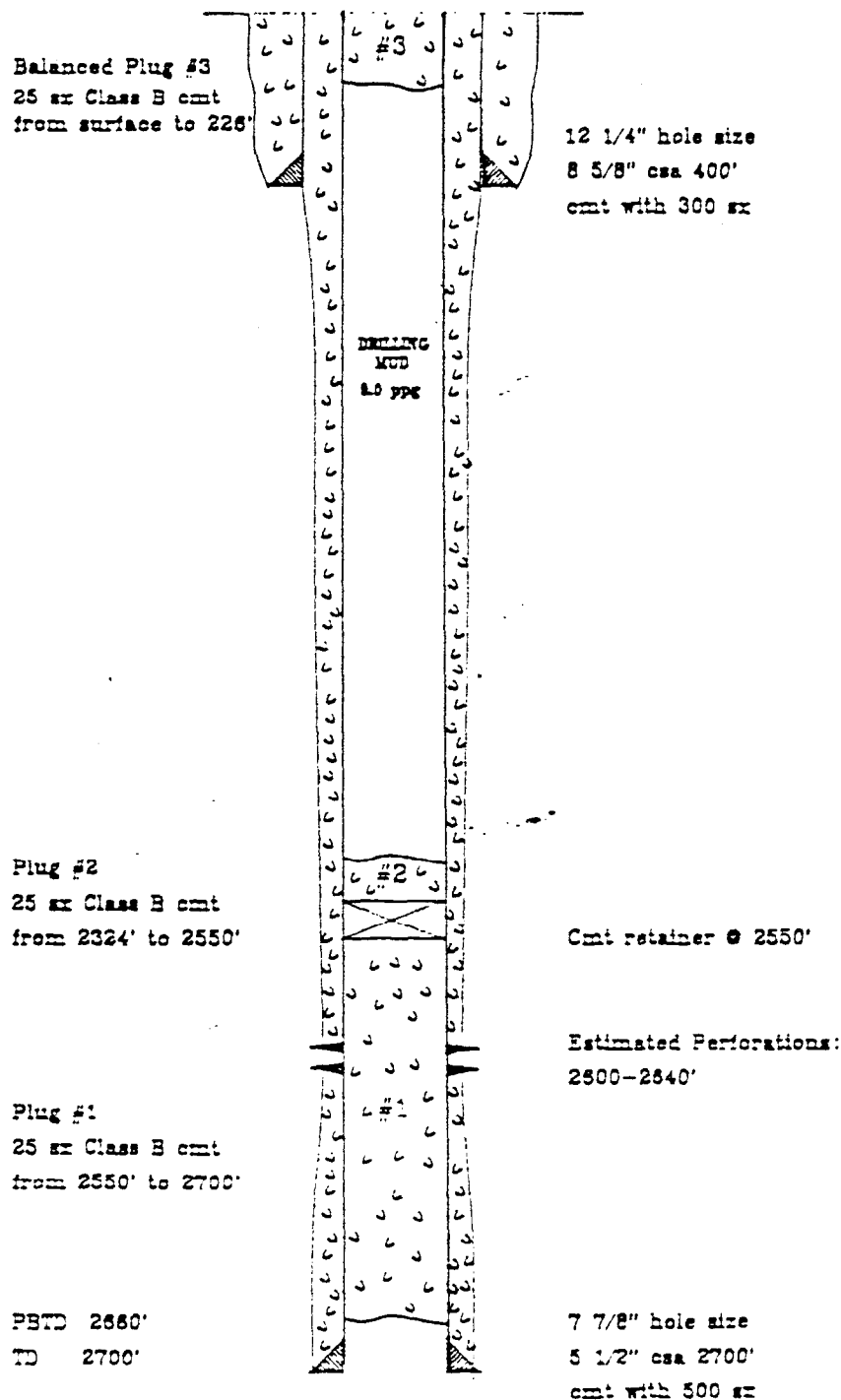
J. F. McAnear
Petroleum Engineering Assoc.

SIGNATURE

DATE SIGNED

Page 12/26/90

ENHANCED RECOVERY NITROGEN INJECTION PILOT
PLUGGING AND ABANDONMENT SCHEMATIC
SIMON LAND & CATTLE NO. 15U-3



All depths for TD, PBTD, perforation, and packer
will depend on actual logged depths of the
Fruitland coal formation once well is drilled.

HL01537418
12/90



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2405

DRAFT

UNDERGROUND INJECTION CONTROL AQUIFER EXEMPTION

In Conjunction With
UIC Permit Numbers - Well Names

CO2556-03105	-	Simon Land & Cattle #15U-2R
CO2557-03106	-	Simon Land & Cattle #22-1
CO2558-03107	-	Simon Land & Cattle #15U-3
CO2559-03108	-	Simon Land & Cattle #15U-4

In compliance with provisions of the Safe Drinking Water Act, as amended, (42 U.S.C. 300f-300j-9, commonly known as SDWA) and attendant regulations incorporated by the U.S. Environmental Protection Agency under Title 40 of the Code of Federal Regulations,

The Fruitland Coal Formation located:

- 1) vertically from approximately 2,350 to 2,900 feet (Kelly Bushing Elevation) below ground level, and
- 2) laterally within the Amoco Production Company Enhanced Recovery Pilot Nitrogen Injection Coal-Degas Project:
Section 15; SE 1/4 of Section 16; NE 1/4 of Section 21; and N 1/2 of Section 22; T34N, R9W, LaPlata County, Colorado, is exempted, if necessary, as an underground source of drinking water.

Fruitland Coal Formation
Aquifer Exemption
Page Two

This aquifer exemption is granted in conjunction with the following Underground Injection Control (UIC) Permits numbered C02556-01305, C02557-01306, C02558-01307, and C02559-01308 issued to Amoco Production Company of Denver, Colorado, for the enhanced recovery pilot project injection of nitrogen gas into the Fruitland Coal Formation in the Simon Land and Cattle Company wells SLC #15U-2R, SLC #22-1, SLC #15U-3, and SLC #15U-4 respectively.

This aquifer exemption has no expiration date.

Signed this _____ day of _____, 1991.

DRAFT

Max H. Dodson, Director
Water Management Division



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 31 1987

*Physical make
certain this doc
with
the well
classification
Book*
OFFICE OF
WATER

MEMORANDUM

SUBJECT: Classification of Wells Used to Inject Air Scrubber
Waste or Water Softener Regeneration Brine Associated
with Oil Field Operations

FROM: Michael B. Cook, Director *Michael B Cook*
Office of Drinking Water

TO: Water Supply Branch Chiefs
Regions I-X

I. Background

The issue of what fluids may be injected into Class II wells has been raised several times since the UIC regulations have taken effect. Most recently, the issue has arisen in regard to certain production practices in California. Due to the viscosity of the heavy crude, a steam flood is used. To produce the steam, sour crude is burned. To meet air requirements, the stacks are scrubbed. Typically produced water is treated and used in this process. Fresh water is sometimes added to make up the necessary volume, and, on rare occasions, used in lieu of the produced brine. The question has been asked by the Western Oil and Gas Association, whether these injection wells used to dispose of the resulting wastes should be classified as Class II wells.

II. Comments

We have sent several drafts of a policy statement to the Regions for comment, the most recent dated July 16, 1987. This policy takes into consideration all comments received and the fact that Regional recommendations varied widely.

III. Final Policy

Aside from enhanced recovery operations, four kinds of fluids, as noted below, may be injected into Class II wells.

1. Waste waters (regardless of their source) from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection. (See 40 CFR 144.6(b)(1)).
2. Brines or other fluids brought to the surface in connection with oil or natural gas production or natural gas storage operations. (See 40 CFR 144.6(b)(1)).
3. Brines or other fluids described in item 2 which, prior to injection, have been
 - (a) used on-site for purposes integrally associated to oil and gas production or storage,
 - (b) chemically treated or altered to the extent necessary to make them useable for purposes integrally related to oil and gas production or storage, or
 - (c) co-mingled with fluid wastes resulting from the treatment in (b),so long as they do not constitute a hazardous waste under 40 CFR Part 261.
4. Fresh water (i.e. water containing less than 10,000 mg/l total dissolved solids) from ground-water or surface water sources, added to or substituted for the brine may also be injected, as long as the only use of the water is for purposes integrally associated with oil and gas production or storage.

The Director of a State program shall make the determination whether or not a particular fluid belongs to one of these categories. He may make such a determination case-by-case or generically for a type of fluid. Such determination shall be reported to the Regional Office.